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(71) Applicant(s) GEC Alsthom Limited (Incorporated in the United Kingdom) PO Box 70, Mill Road, RUGBY, Warwickshire, CV21 1TB, United Kingdom	(52) UK CL (Edition O) H2F F14 G3U UEG U209 U210 U212 H2H HAB H23G H25G
(72) Inventor(s) John Desmond Ainsworth David Reginald Trainer Philip John Fitz	(56) Documents Cited GB 2152306 A GB 2103439 A GB 2057796 A GB 1415634 A GB 1246703 A GB 1238015 A GB 1137106 A US 4571535 A US 4470005 A
(74) Agent and/or Address for Service Henry Anthony Branfield GEC Patent Department, Waterhouse Lane, CHELMSFORD, Essex, CM1 2QX, United Kingdom	(58) Field of Search UK CL (Edition N) G3U UEG , H2F FMAS FMAT FMAX F14 , H2H HAB INT CL ⁶ G05F 1/70 , H02J 3/16 3/18 , H02M 1/00 Online : wpi

(54) Multilevel converter

(57) A multilevel convertor 30 for connection in shunt or in series with each phase of a single or multi-phase AC system is configured as a chain comprising a plurality of links, each of which comprises a voltage-commutated convertor providing a multilevel AC voltage, and a main control arrangement for controlling a switching sequence of the voltage-commutated convertor such as to provide a total voltage across the ends of the chain which is an aggregate of the individual multilevel voltages of the voltage-commutated convertors. Each voltage-commutated convertor may consist of a bridge and a DC source or sink. The DC source or sink may be either a capacitor, a battery or a DC-AC or AC-DC convertor. The multilevel convertor may also include voltage-balancing means to maintain desired absolute or relative voltage levels on the DC sources or sinks within the chain. The convertor may include GTO or IGBT devices and various circuits are described (Figs. 7 - 15). The control arrangement to regulate the convertor is described (Figs. 17 - 22). A capacitor clamping arrangement (Figs. 23 - 25) may be provided.

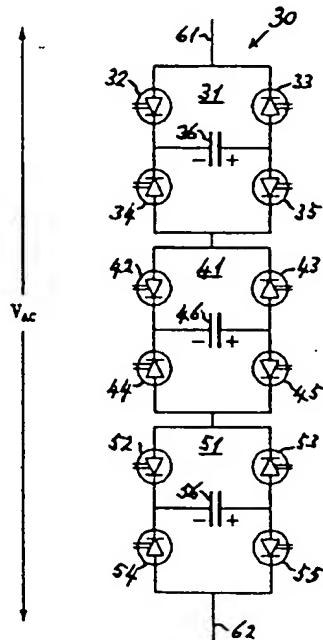


Figure 3

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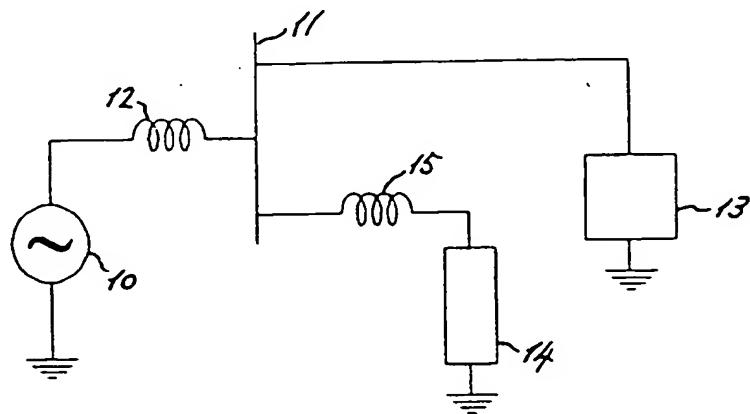


Figure 1

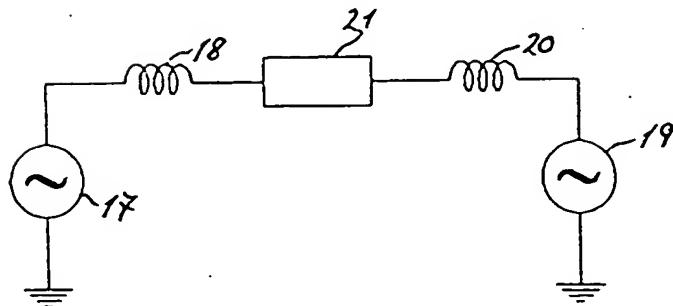


Figure 2

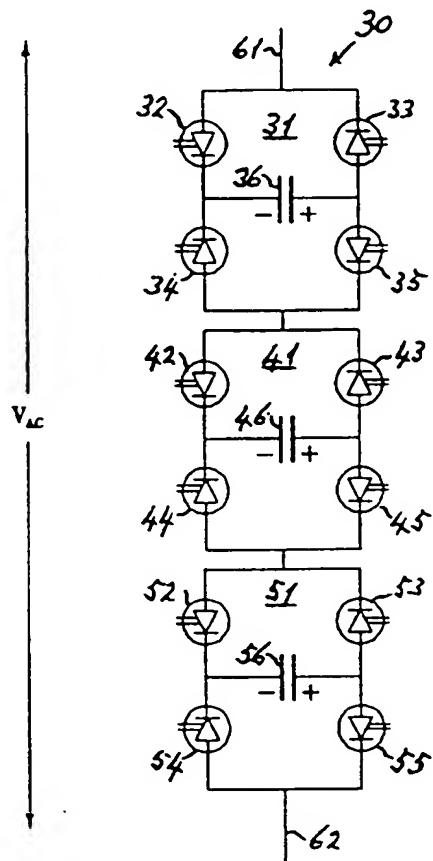


Figure 3

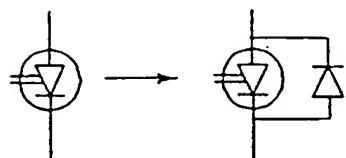


Figure 4

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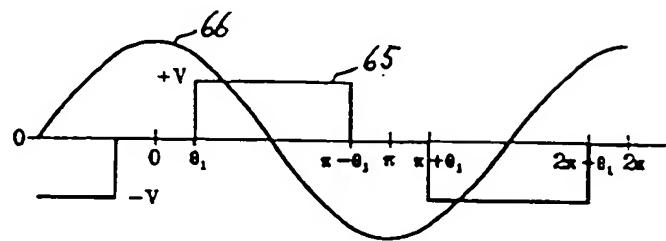


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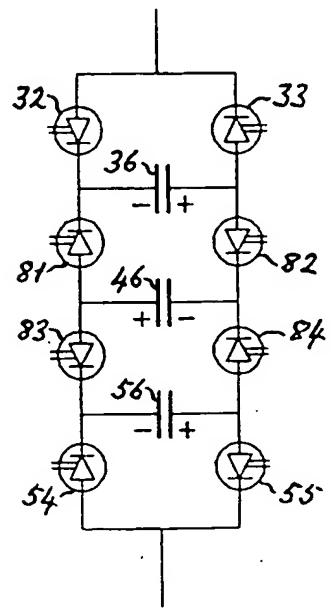


Figure 7

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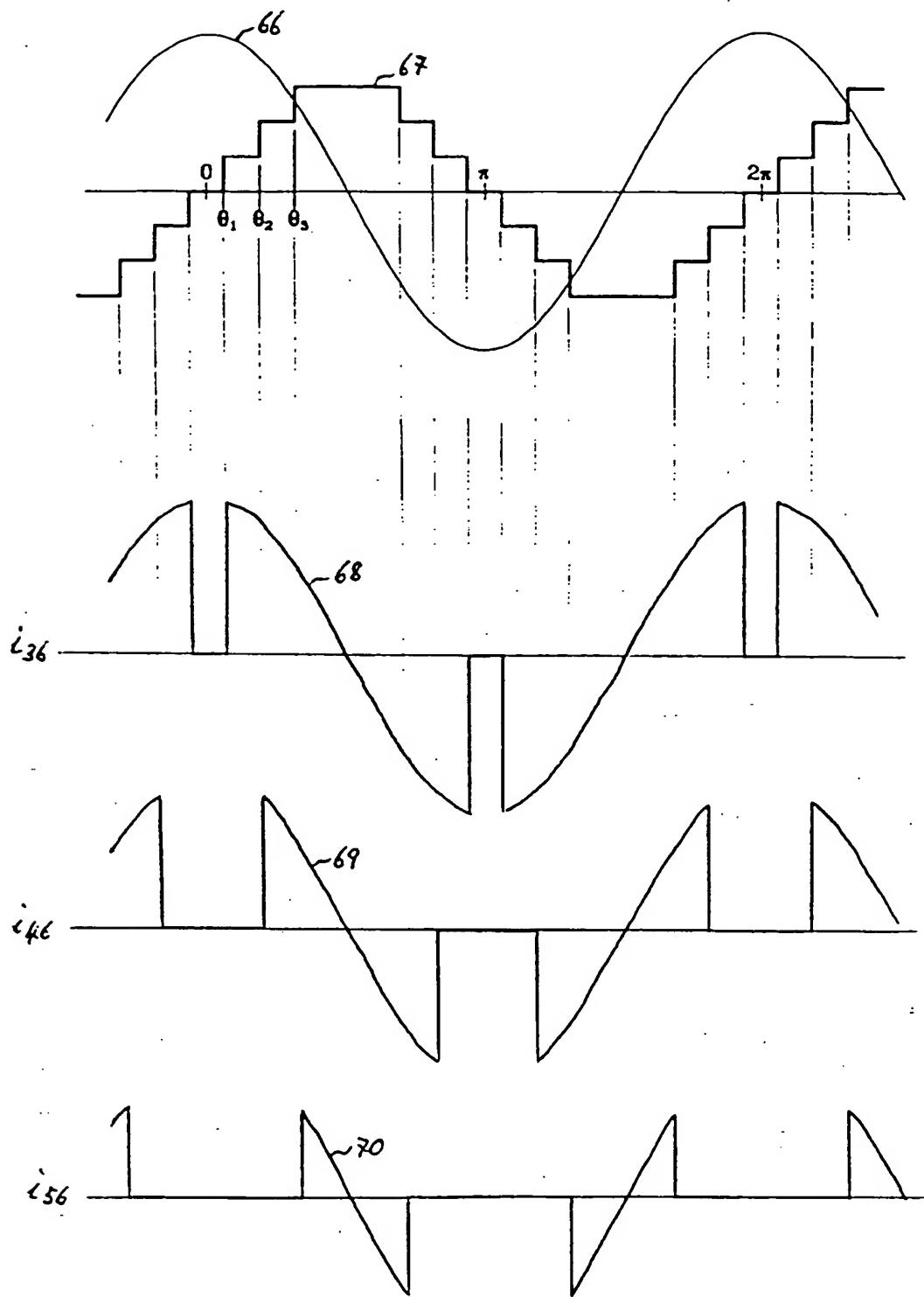


Figure 6

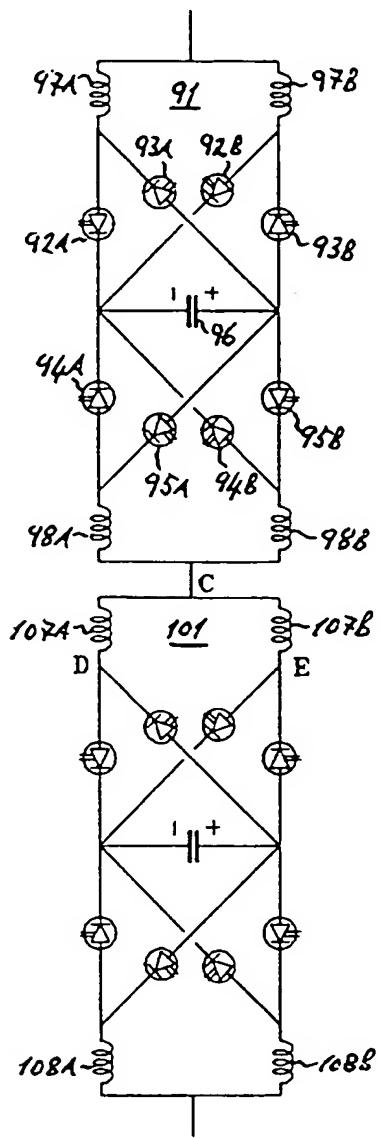


Figure 8

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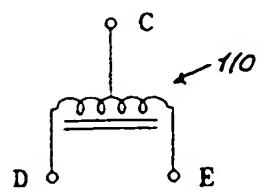


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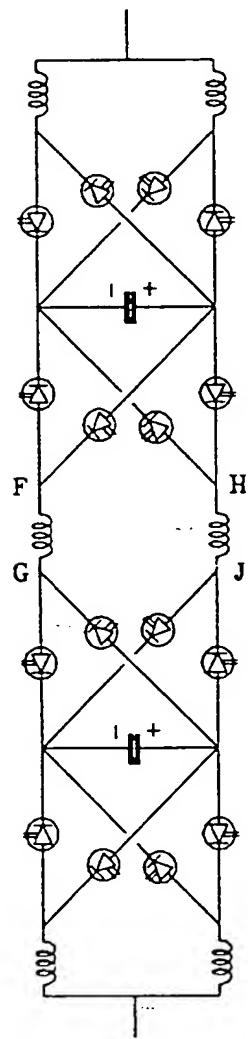


Figure 10

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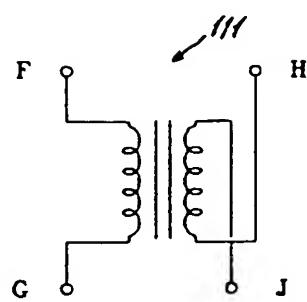


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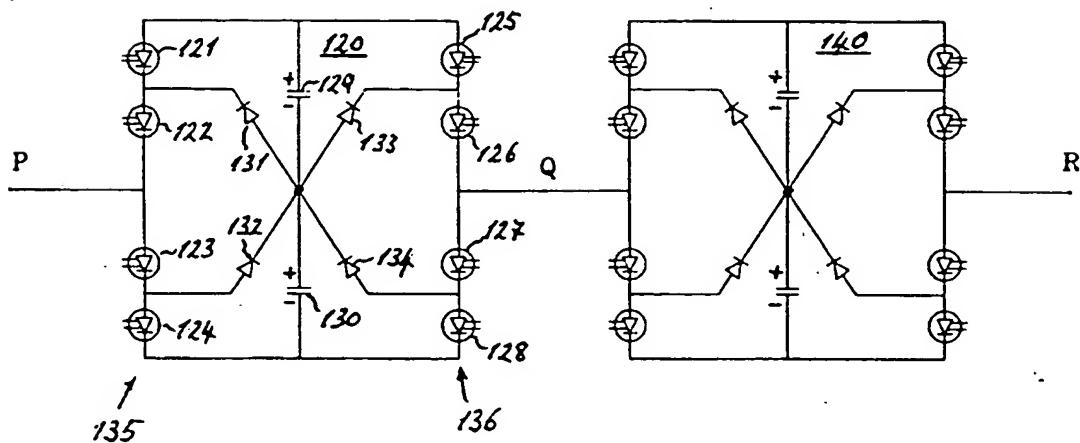


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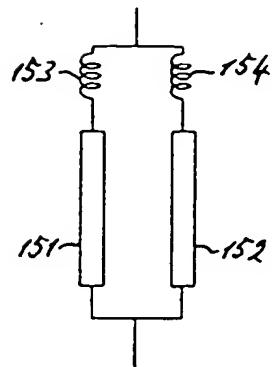


Figure 13

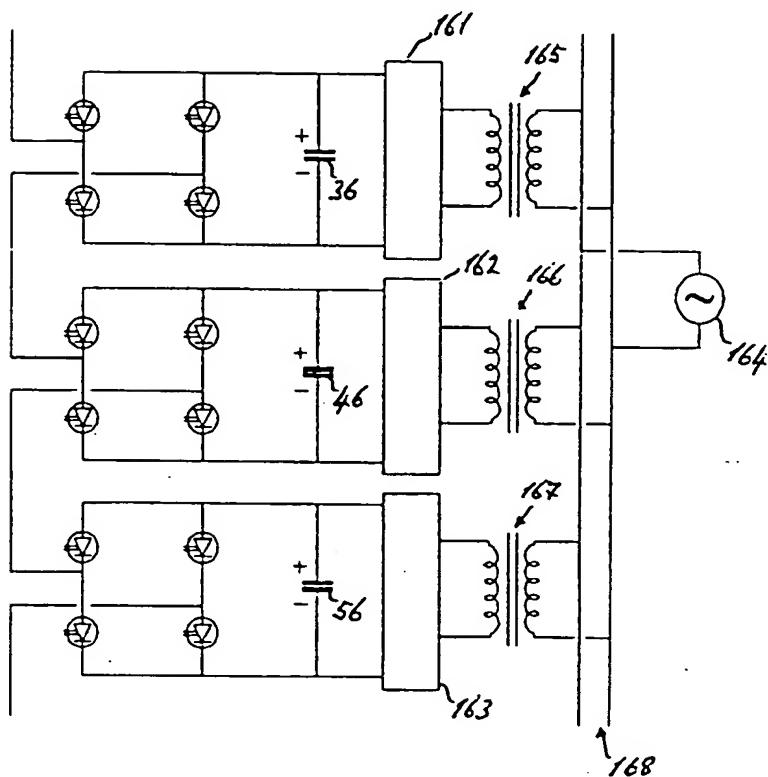


Figure 14

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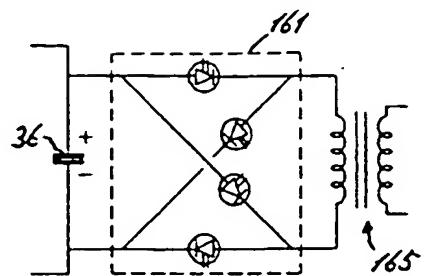


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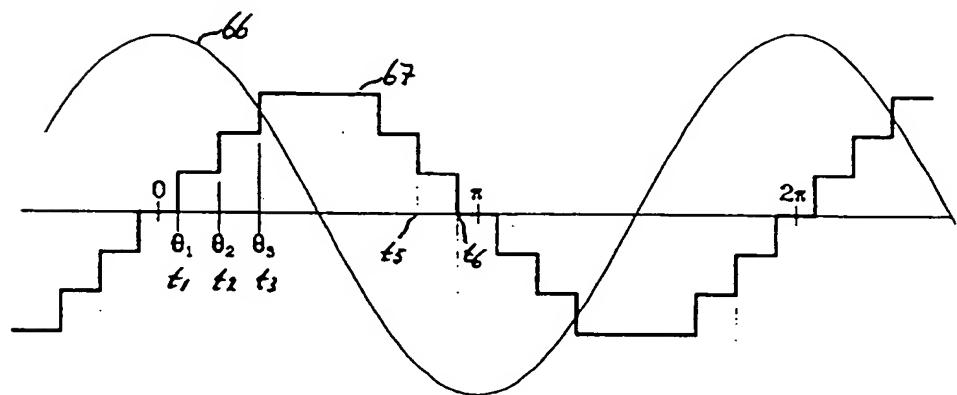


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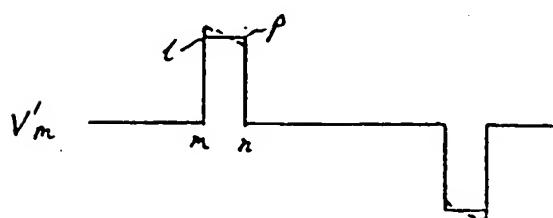
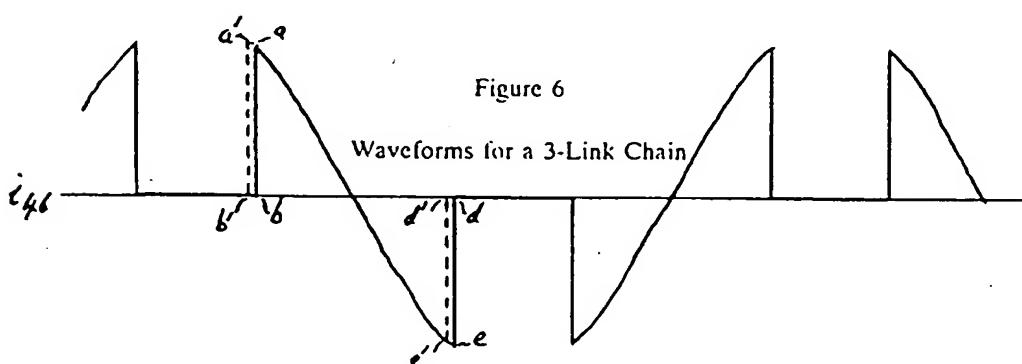


Figure 16